

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

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NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT
(PCT Rule 71.1)

Date of mailing
(day/month/year) 1 1. 06. 99

Applicant's or agent's file reference

PBA/87852

IMPORTANT NOTIFICATION

International application No.
PCT/GB98/00468

International filing date (day/month/year)
02/03/1998

Priority date (day/month/year)
01/03/1997

Applicant

THE VICTORIA UNIVERSITY OF MANCHESTER et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

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PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference ---	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB98/00468	International filing date (day/month/year) 02/03/1998	Priority date (day/month/year) 01/03/1997
International Patent Classification (IPC) or national classification and IPC C12N15/12		
Applicant THE VICTORIA UNIVERSITY OF MANCHESTER et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 7 sheets, including this cover sheet.

- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 06/08/1998	Date of completion of this report 11.06.99
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**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB98/00468

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

Description, pages:

1-30 as originally filed

Claims, No.:

1-27 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

see separate sheet**III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application.
☒ claims Nos. 1-10, 12, 16 all compl., 13-15, 17-27 all part..

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

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- ☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 1-10, 12, 16 all compl., 13-15, 17-27 all part. are so unclear that no meaningful opinion could be formed (*specify*):

see separate sheet

- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☐ no international search report has been established for the said claims Nos. .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	11, 13-15, 17-21 part.
	No:	Claims	11, 13-15, 17-27 part.
Inventive step (IS)	Yes:	Claims	11, 13-15, 17-21 part.
	No:	Claims	11, 13-15, 17-27 part.
Industrial applicability (IA)	Yes:	Claims	11, 13-15, 17-21 part.
	No:	Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB98/00468

ad section I

1. With the letter dated 04.05.1999, Applicant submitted new claims 1-24. However, no basis could be found for the features newly introduced into claim 1. Therefore, these amendments cannot be allowable under Art.34(2)(b) PCT.
2. Therefore, this IPER has been based on claims 1-27 originally filed.

ad section III

1. Claim 1 does not indicate the solution of the problem which has been formulated as "to express said pro-alpha chains ... with domains which have the activity of the C-terminal propeptide domains but which will not co-assemble with ...". Therefore, claim 1 attempts to define the subject-matter in terms of the result to be achieved.

Also claim 2, requiring the presence of a recognition sequence does not help to overcome the above problem. In fact, there is neither indication of the nature of the recognition sequence, nor of its location.

The latter problem still adheres with claims 3-10.

2. The essential features of the present invention seem to be depicted in claim 11 as far as referring to claims 3-10. Claim 11 teaches that the gene encoding a pro-alpha chain comprises a recognition sequence derived from one pro-alpha chain and an alpha chain domain derived from a different source, in other words, claim 11 teaches the exchange of the recognition sequence. The nature of the recognition sequence is incorporated by referring to claims 3-10.

It follows that claim 11, as far as referring to claim 2 also suffers from the absence of the identification of the recognition sequence.

3. Claim 12 also involves problems upon interpretation. In fact, a "chimeric pro-alpha gene formed of at least two different pro-alpha chains" does not necessarily encompass the teaching of claim 11.

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The same applies to claim 16.

4. Therefore, claims 13-15 can only be interpreted in a meaningful way by considering their dependencies on claim 11, exclusively.
5. The same applies, mutatis mutandis, to the subject-matter of claims 17-27.
6. Taken together, claims 1-10, 12, and 16, all complete, cannot be interpreted in a meaningful and therefore, cannot be subjected to IPE. The same applies to claims 13-15 and 17-27, all partially.

Therefore, claim 11 as far as referring to claims 3-10 and claims 13-15 and 17-27 as far as referring thereto, form the basis of this communication.

ad section V

1. The following documents are considered relevant prior art:

D1: WO93/07889

D2: JBC 269/39, 1994, 24354-60

2. Novelty (Art.33(2) PCT):

- 2.1 D1 discloses procollagen and collagen expression systems. Pro-alpha 1(I), 2(I), 1(II) and 1(III) are combined thus creating hybrid constructs (see examples 1, 2 and 6, claims 1-9 and 18-25). The expression product may have therapeutical use such as in the repair of cartilage damage (see page 10, line 20 to page 11, line 17).

Accordingly, the subject-matter of claim 11 as far as referring to claims 3-6 is not novel. In fact, the particular recognition sequences of claims 3-6 are comprised in the hybrid genes as disclosed in D1.

- 2.2 The same applies to claims 13-15 and 17-21 as far as referring thereto.

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3. Inventiveness (Art.33(3) PCT):

- 3.1 The teaching that the gene encoding a pro-alpha chain comprises a recognition sequence derived from one pro-alpha chain and an alpha chain domain derived from a different source cannot be derived from the cited prior art in an obvious way.

In fact, D1 - though it discloses "methods for the production of (pro)collagens derived solely from transfected (pro)collagen genes" (see D1, page 10, lines 15-17) - it does neither teach nor suggest that the C-terminal part is responsible for strain-recognition and that this part is interchangeable within the different pro-alpha chain types.

Also D2 - though hypothesizing on the importance of the C-terminal part in chain discrimination during procollagen assembly (see D2, page 24360, last paragraph) - does not lead the skilled person to the teaching of claim 11.

Accordingly, the subject-matter of claim 11 as far as referring to claims 7-10 comprises an inventive step.

- 3.2 The same applies to claims 13-15 and 17-21 as far as referring thereto.
- 3.3 Selecting other hosts than those discloses in D1, including establishing and selecting a transgenic animal or plant as the host, cannot be considered as to comprise an inventive step.

Therefore, the subject-matter of claims 22-27 can only be considered inventive as far as depending on the inventive claims.

4. For the assessment of the present claims 26 and 27 on the question whether they are industrially applicable, no unified criteria exist in the PCT. The patentability can also be dependent upon the formulation of the claims. The EPO, for example, does not recognize as industrially applicable the subject-matter of claims to the use of a compound in medical treatment, but may allow, however, claims to a known compound for first use in medical treatment and the use of such a

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compound for the manufacture of a medicament for a new medical treatment.

5. The priority document of the present application has not been available at the time of establishing this IPER. Therefore, this IPER has been based on the assumption that the relevant parts of the claims enjoy the priority claimed.

Should it later turn out that this is not the case the P/X-documents cited in the International search report could become relevant to the subject-matter of the claims.

*** RX REPORT ***

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